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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
DEPARTMENT OF COMMERCE
BEFORE THE
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Good morning, Mr. Chairman and distinguished Members of the Subcommittee. As Acting Undersecretary for Oceans and Atmosphere for the National Oceanic and Atmospheric Administration (NOAA) within the Department of Commerce, I thank you for the opportunity to appear before you today to discuss maritime threats and port security. Like so many around the country, we at NOAA have lost family, friends, and colleagues in the tragic events of September 11th. These events have strengthened NOAA's resolve to support our Nation in all possible ways and to do what we can to ensure the safety and security of all Americans.

I am here to discuss how NOAA's mission supports disaster response efforts; the support NOAA provided on and since September 11th; and future NOAA efforts to support Homeland Security, particularly with respect to port security. I will also discuss our partnership with the United States Coast Guard (USCG), which is the lead agency responsible for ensuring the safety and security of the Nation's maritime areas.

NOAA's Mission

NOAA works to protect lives and properties from hazardous events and disasters. We forecast events such as hurricanes and tornadoes; respond to spills and accidents in the marine environment; and provide tools, training, and technology to communities to mitigate the effects of hazards. NOAA shares its responsibilities for disaster response and relief with a variety of partners at the national, state, and local levels. In the last few years, NOAA has developed an agency-wide Incident Response Plan to coordinate the delivery of appropriate assets, capabilities, and expertise in a timely and efficient manner. During and following the events of September 11th we activated this Plan, enabling many NOAA programs to quickly and efficiently support the response efforts, including essential personnel in weather offices, satellite and remote sensing, and hazardous materials units.

Response

On September 11th, many Federal, state and local agencies and organizations moved rapidly to aid in response and recovery. NOAA continues to be part of this response team, providing tools, technology, and personnel on scene at the World Trade Center (WTC) and in many support locations around the country. The following are some examples of NOAA participation in the response and recovery efforts to the September 11th emergencies.

Agents of the NOAA Fisheries Office for Law Enforcement were requested and engaged within hours of the September 11th attacks. Since then, 25 agents continue to support investigative, security and search and recovery efforts. Some of our agents are assisting the Federal Bureau of Investigation in the investigation of terrorist activities; others worked for days at "Ground Zero" in New York City in the early search and rescue phases of the response. In addition, NOAA agents are operating in a number of capacities ranging from border and airport security to port patrols. For example, 21 agents will serve on temporary but extended duty as Air Marshals for the Federal Aviation Administration. They reported for training on Monday, October 8th, at Fort Dix, New Jersey, and will be deployed to various duty stations immediately after they conclude training.

The National Weather Service (NWS) forecast offices in Sterling, Virginia and Upton, New York continue to provide special forecasts to the Pentagon and lower Manhattan recovery efforts. The Weather Service developed special web pages which support emergency managers in both locations. These one-stop web pages include short and long term alphanumeric forecasts; graphical forecasts; applicable watches, warnings, and statements; and radar, satellite, lightning, and observational data. The White House also asked for special weather reports to evaluate potential impacts on the activities conducted by the Federal Emergency Management Agency. NOAA prepares these reports daily for the White House as well as for other classified activities.

NOAA directly supported search and recovery efforts at both the WTC and the Pentagon disaster sites with its mapping and remote sensing capabilities. The Army Joint Precision Strike Demonstration coordinated a highly detailed mapping mission at both disaster sites using Light Detection and Ranging (LIDAR) technology. LIDAR is an active remote sensing system used to profile or scan terrain elevations. NOAA's National Ocean Service (NOS), the NOAA Office of Marine and Aviation Operations (OMAO), Optech, Inc., and the University of Florida teamed up to fly the LIDAR in NOAA's Cessna Citation. NOAA produced an image at 15 centimeter accuracy using LIDAR data, traditional aerial photography, and accurate Global Positioning System (GPS) measurements connected to the National Spatial Reference System. The data and images produced were critical for search and recovery efforts by setting a network of consistent standards. Specifically, it allowed for the establishment of an accurate spatial reference frame from which rescuers could perform effective recovery; provided an accurate birds-eye-view of the scene, which is critical for locating structures such as elevator shafts; and the establishment of a LIDAR calibration network. This calibration network was critical to private sector entities, such as Earthdata, to collect data efficiently using new technology. NOAA has been requested to

return to the WTC site to provide data for change analysis.

The LIDAR data will also be used to monitor structural movement of damaged buildings in the area of the WTC disaster and to calculate volume of rubble. These images provide very accurate height measurements as the recovery efforts descend into the Tower basements, to mitigate possible flooding from the surrounding rivers. The Pentagon site is also being mapped with LIDAR to be used for reconstruction purposes.

Additionally, a NOAA pilot on temporary duty with NASA piloted an aircraft equipped with the Airborne Visible/Infrared Imaging Spectrometer (AVIRIS) system at the request of the Environmental Protection Agency (EPA) in order to identify and locate asbestos fallout from the WTC plume. NOAA/OAR scientists have also been assisting EPA efforts to assess ground-level air pollution problems in New York, primarily associated with asbestos released as the buildings fell.

In response to USCG harbor security needs, NOAA rushed paper copies of the New York nautical chart to the Coast Guard, Staten Island, to aid its response in the WTC emergency. Subsequently, NOAA has employed its regional Navigation Managers and Scientific Support Coordinators to help facilitate meetings on port security issues and contingency planning with the Navy, Coast Guard and other government and port sector officials. For example, in Hampton Roads, Virginia, home to the Nation's largest military port and commercial port operations, some 275 people connected to the port mobilized to discuss security issues in the week after the attack. The Captain of the Port and Commanding Officer of the Norfolk Navy Base commended NOAA for its charting work to rapidly provide a clearly marked security/restricted area around the U.S. Navy Base. The rest of the maritime community was encouraged to work with NOAA and the Army Corps of Engineers to identify areas for security/restricted zones on NOAA charts. NOAA will continue to revise its nautical charts to reflect new security zones and get that charted information out to mariners for security measures.

NOAA's New York area Scientific Support Coordinator (SSC) provided on-site scientific support to the USCG Federal On-Scene Coordinator in preparation for possible oil and hazardous material pollution resulting from the WTC collapse. Although no significant marine pollution event occurred, the SSC evaluated numerous water pollution risks associated with potential hazardous materials releases from the WTC site. NOAA's Scientific Support Team in Seattle provided an inventory of contaminants that might have been present in the impacted buildings and prepared to develop spill trajectories in the event that a pollution incident occurred. NOAA provided the tidal information necessary to develop water trajectory models. In addition, NOAA developed an information management support system for the USCG, which included an Intranet site for information sharing within the USCG response community, and an internet site for rapid dissemination of marine safety information to the public (http://www.incidentnews.gov).

NOAA also provided support through our involvement in the National Ice Center (NIC). NIC is a multi-agency operational center representing the Department of Defense (Navy), Department of Commerce (NOAA), and Department of Transportation (Coast Guard). The NIC's mission is to provide worldwide operational sea ice analyses and forecasts for the U.S. armed forces, allied nations, the civil sector, and other U.S. government and international agencies. We regret to report that two members of the NIC lost their lives during the terrorist attack at the Pentagon. However, the NIC family pulled together as NOAA, Navy and Coast Guard personnel assisted the Red Cross at the Pentagon with food and supply distribution to emergency workers.

NOAA is presently working to identify the impact that our response and recovery efforts had on our resources and on our core functions. We will work with OMB and the Department to identify and, if necessary, replace these activities during the FY 2003 budget process.

Preparedness and Prevention - Homeland Security

NOAA is now looking at what we can do in the future to ensure the safety and security of Americans. Following the events of September 11th, I directed all NOAA programs to organize and inventory NOAA's broad array of responsibilities as they relate to Homeland Security. One of NOAA's top priorities is to identify possible weaknesses in our own security and potential threats to NOAA infrastructure, including data networks; supercomputers; satellite command, control, data acquisition and dissemination; and intranet/internet infrastructure. We are moving quickly to protect the security of our infrastructure.

NOAA is also examining what we can do both within our existing programs and resources to better prepare for any future incident. We are detailing what we can do now, and what we could do with additional resources over a longer time frame. These preliminary efforts include developing better water and atmospheric models that would give information regarding dispersal of a variety of materials including biological and chemical agents. They also include enhancing a number of products and services including satellite data; electronic navigational charts to support the early implementation of Coast Guard's Automatic Information System; preliminary talks with the Navy to cooperate on harbor traffic lane and approaches; hydrographic surveys for comprehensive baseline data of U.S. ports to assist in obstruction detection; and the Computer-Aided Management of Emergency Operations (CAMEO) that EPA and NOAA jointly designed to assist emergency responders in preparing for and responding to chemical releases. We anticipate that we will complete these detailed assessments within the next 30 days and will be in a better position to identify any additional assistance, guidance or accommodation needed from the White House. The following examples are some of NOAA's capabilities that could be used to support the Administration's Homeland Security efforts.

The NOAA NWS is poised to support response and recovery operations. We are improving our ability to provide weather support to response and recovery activities by ensuring that all 121 forecast offices are prepared to deliver the same level of service provided by the Upton and Sterling offices. In the event of a larger-scale attack, the Weather Service National Centers for Environmental Prediction could be used for hourly prediction services over a large scale. In addition, incident meteorologists could be deployed for on-scene port forecasts services just as they currently are for major wildfires.

One of the NWS' greatest assets is its ability to deliver hazard emergency messages to the public, both directly through the NOAA Weather Radio and through our partners. In the event of nuclear accidents and hazardous material incidents, the NWS currently provides emergency alert notification services directing the public to seek additional information from Federal, state or local officials. This capability could also be used in the event of another national emergency. The NOAA Weather Radio also triggers the Emergency Alert System, which allows these emergency messages to be received and re-disseminated through the media almost immediately.

NOAA Office of Oceanic and Atmospheric Research, together with the NWS provides operational dispersion forecasts, via computer modeling, for large releases of radioactive material for both the Federal Radiological Emergency Response Plan and the Federal Response Plan, as well as for wildfires and volcanoes. Within current resources, NOAA is working to improve
its atmospheric monitoring and dispersion forecasting capability by developing an urban monitoring system network, with a test deployment planned for Oklahoma City. NOAA could quickly improve the resolution of the model predictions by meshing the dispersion model with the National Weather Service's weather prediction models.

These capabilities are also suitable for dealing with chemical and biological threats. An urban monitoring system, including sensors to detect toxins and a high resolution model, could provide real time information to predict and track dispersion of chemical or biological agents. A meteorological monitoring network for the Washington, D.C. area could be set up on a 24/7 basis within six months.

As a consequence of multi-agency examinations of current capabilities to respond to an attack involving release of radioactive materials into the air, one of the OAR research laboratories is working directly with the Federal Emergency Management Agency (FEMA) to ensure rapid NOAA response. An important part of this is the NOAA role in the operations of the Department of Energy's nuclear terrorist response activities. NOAA personnel provide the on-site meteorological guidance required in the event of a radioactive material release, with local offices of the NWS are ready to provide necessary meteorological data, and the National Weather Radio System standing by to be of assistance. All of this involves a close coupling between NOAA's Air Resources Laboratory and the NWS, through the NOAA Radiological Emergency Response Plan.

NOS has a variety of programs, one which serves as a critical base to geographic information. NOS is responsible for the establishment of a National Spatial Reference System (NSRS) which serves a base to all geographic information As the rescuers witnessed in NYC, it was critical to their rescue and recovery efforts to have a base reference system to locate all utilities and building structures. NOS works with other federal, state and local agencies and private industry to establish standards that form a common base between all entities. This common base is becoming more and more critical with the enormous use of geographical information systems and the global positioning system. The NSRS serves as the only accurate common link for these data tools. Most recently, new modernized efforts are underway to set standards for height measurements.

NOS maps and provides information needed for safe air transportation, including information used to develop instrument approach and departure procedures at all major U.S. airports. Specific features such as fences, access roads, obstructions/obstacles, and navigational aids on and around the airport are precisely measured by NOS. This program utilizes the same tools used for the shoreline mapping program, national spatial reference system, airborne remote sensing, and frame photography. NOS is developing new technology to display a virtual reality image to be used in aircraft cockpits called synthetic vision. NOS's high-resolution imagery of the entire airport and obstructions features is combined to create super accurate terrain databases. These databases are then combined with GPS and graphic displays along with advanced sensors to create real-life 3-d moving scenes for navigating the aircraft in poor or zero visibility.

As you are aware, NOAA is home to the NOAA Corps, the smallest of the Nation's seven Uniformed Services. Although these officers primarily have science and engineering backgrounds, they too stand ready to support the Department of Defense (DOD) and any other Federal agency that requires assistance in protecting the Nation's security. At the request of the DOD, NOAA has provided a summary of its capabilities, ships and aircraft that could be used in a national emergency. NOAA's Office of Marine and Aviation Operations operates our diverse fleet of research and hydrographic coastal and ocean-going vessels ranging in length from 90 to 300 feet, as well as our helicopters and airplanes. OMAO abilities to assist port security efforts include assisting the USCG boarding or inspection parties, supporting port/harbor security, providing sophisticated airborne chemical detection support, conducting hydrographic surveying/sea floor mapping and Geographic Information System, conducting state-of-the-art sonar operations, and providing additional hurricane reconnaissance if U.S. Air Force assets are reassigned.

Ports and Maritime Security

A vital part of NOAA's contribution to Homeland Security will involve the issues of port and maritime security. Our ports are currently one of the most vulnerable choke point in the Nation. At current resource levels, it is extremely difficult to inspect every shipment entering every port. Our commercial ports also double as logistical centers for the rapid deployment

of American forces and materials. As gateways to our largest cities and industries, U.S. seaports are strategic targets for attack. While the activities I just finished discussing may also apply to Homeland Security, the following examples are illustrative of NOAA's role in port security specifically. As I previously mentioned, we will be reviewing our port related activities as part of our overall Homeland Security assessment.

At the request of Coast Guard Headquarters and individual Captains of the Port, NOS is helping to assess specific chemical transportation threats. Building on the expertise required to develop CAMEO and related trajectory models, chemical plume projections and other hazards are being modeled for a variety of incident locations under numerous environmental conditions. These same capabilities can be used to assess risk from other dangerous cargos under a variety of environmental conditions at ports throughout the United States.

It is important to provide consistency and reliability to the Nation's ports with more accurate, timely and better-integrated information for both users and system managers. Improving the Marine Transportation System (MTS) information infrastructure serves both maritime security and port safety for maritime commerce. NOAA's unique role as an information provider will be of great benefit to the Coast Guard, the Navy and contingency planners as they develop strategies for Maritime Domain Awareness and port security. NOAA's liaison and communications links across military, government and private sector interests provide an invaluable element of coordination to port security.

Mariners need real-time information displays such as the Coast Guard's Automatic Identification System (AIS) and NOAA's Electronic Navigational Charts (ENCs) integrated with differential GPS positioning, water level and current data, weather conditions and forecasts, in order to make informed and safe decisions. The Coast Guard, port authorities, and pilots also require this information to effectively communicate from shore, manage vessel traffic, identify potential problems, and respond to incidents. Augmenting the number and functionality of NOAA's ENCs will support AIS, vessel traffic management, and response efforts.

NOAA can also rapidly disseminate chart updates and critical chart corrections to the mariner, and we can create and distribute temporary charts, overlays and data sets as needed by primary responders like the USCG. NOAA has some rapid response capability to survey U.S. waters following an emergency situation. In the past we have supported the USCG on incidents such as airplane crashes and bridge strikes. We quickly and efficiently send our Navigation Response teams and hydrographic vessels to acquire detailed side scan and multi-beam survey images for search and recovery. This capability is another weapon in the defense against maritime threats, as it allows ports to be re-opened quickly if nothing is discovered and helps the USCG to design temporary lanes and detours based on depth data.

Developing port contingency plans is also critical to strengthening maritime security.

NOAA's real-time tides, water levels and current data information are of significant benefit here. Specifically, if the Coast Guard needs to evacuate vessels or people from a port city, open temporary lanes or detours, or respond with life saving efforts, accurate and timely tide and current information would be imperative. If vessels carrying dangerous cargo have to leave port quickly, NOAA's real-time and predicted water level data would allow them to gauge departure times. This minimizes the possibility of vessels going aground and blocking other vessel movement, spilling contaminants, or becoming additional targets of terrorism (e.g. liquid natural gas or oil tankers). Expanding NOAA's models of port oceanographic, atmospheric, and water quality conditions to more ports would provide advance crucial information to plan for re-routing of vessel traffic, port condition forecasts, and low visibility navigation to keep traffic moving and prevent congestion or delays in other less affected areas.

The adaptation of marine technology developed for oceanographic research can also support port security efforts. For example, OAR has developed a portable autonomous hydrophone system for the acoustic detection of earthquakes which could be deployed where needed to provide passive detection capabilities. OAR has also developed technology to deliver data from underwater sensors to shore-based monitoring centers in real-time.

NOAA is also prepared, in the event of an emergency, to help return ports and associated affected coastal environments to a viable state. NOAA expertise includes: damage assessment and determining the injury and appropriate baseline for recovery goals; reconstruction support, such as historical data for change analysis; long term local and regional support for recovery, such as community liaisons to support extended efforts; and long term monitoring of biological indicators of recovery as well as monitoring infrastructure for subsidence and movement.

NOAA will continue to provide whatever assistance it can on planning for port security, military mobility, and addressing the dynamics between ongoing military and commercial port operations.

NOAA and USCG Partnership

One of NOAA's closest Federal partners in many of our activities is the U.S. Coast Guard. We work with the Coast Guard on fisheries and sanctuary enforcement, the Marine Transportation System, satellite-aided search and rescue, and hazardous material spill response in marine and coastal environments. This partnership has been a long-standing and productive one for both agencies. I thank the Coast Guard personnel for their tremendous efforts since September 11th to ensure the safety of our valuable port areas. Our ports and MTS are valuable not only to national security from the perspective of military mobility, but they are also the backbone of our Nation's commerce, as over 95% of U.S. foreign trade tonnage is shipped by sea and more than two-thirds of everything we buy, eat or wear

arrives via the MTS. The Coast Guard plays a vital role in protecting this critical commercial activity, and as I mentioned earlier, NOAA is working hard to support the Coast Guard's security measures. In some harbors and ports located near military bases and nuclear facilities, the National Marine Fisheries Service has provided the Coast Guard with NOAA vessels and limited personnel support to assist with security patrols.

I believe that it is important to note, however, that the extra effort the Coast Guard is putting into port and maritime security is having an impact on many of these partnerships, including enforcement efforts and activities in the MTS. For example, Coast Guard fisheries enforcement has been reduced, with potentially negative impacts to the health of our Nation's fisheries. Damaged fishery stocks could have long term impacts on our Nation's economy.

Another critical role of the Coast Guard is the in-kind support to the NWS for servicing and deploying buoys. After the September 11th event, Coast Guard ships have been redeployed to provide port security. Due to this redeployment, we currently have 4 marine buoys that cannot be serviced. Depending on how long the Coast Guard Ship are unavailable for buoy maintenance, this could have an impact on NOAA services and result in higher maintenance costs.

NOAA and our other partners are working to mitigate the impacts to the USCG/NOAA partnerships and we will be working especially with our state partners to develop viable alternatives.

Conclusion

In conclusion, NOAA responded rapidly to the horrific events of September 11th and was able to provide a number of critical support services to the response effort, including scientific and technical support to our close partner, the USCG. As many have noted, it is clear that life will no longer be the same in our country and that every Federal agency must reexamine why and how each of its programs work toward accomplishing its mission. NOAA is working quickly to determine how we can best support Homeland Security, particularly with respect to port security and the Marine Transportation System in order to ensure that maritime commerce continues to flow through our ports and harbors to fuel our Nation's economy. We will continue to work closely with the USCG, others in the Administration, non-Federal partners, and Congress to protect our vital port operations.